MISSOURI BOTANICAL GARDEN
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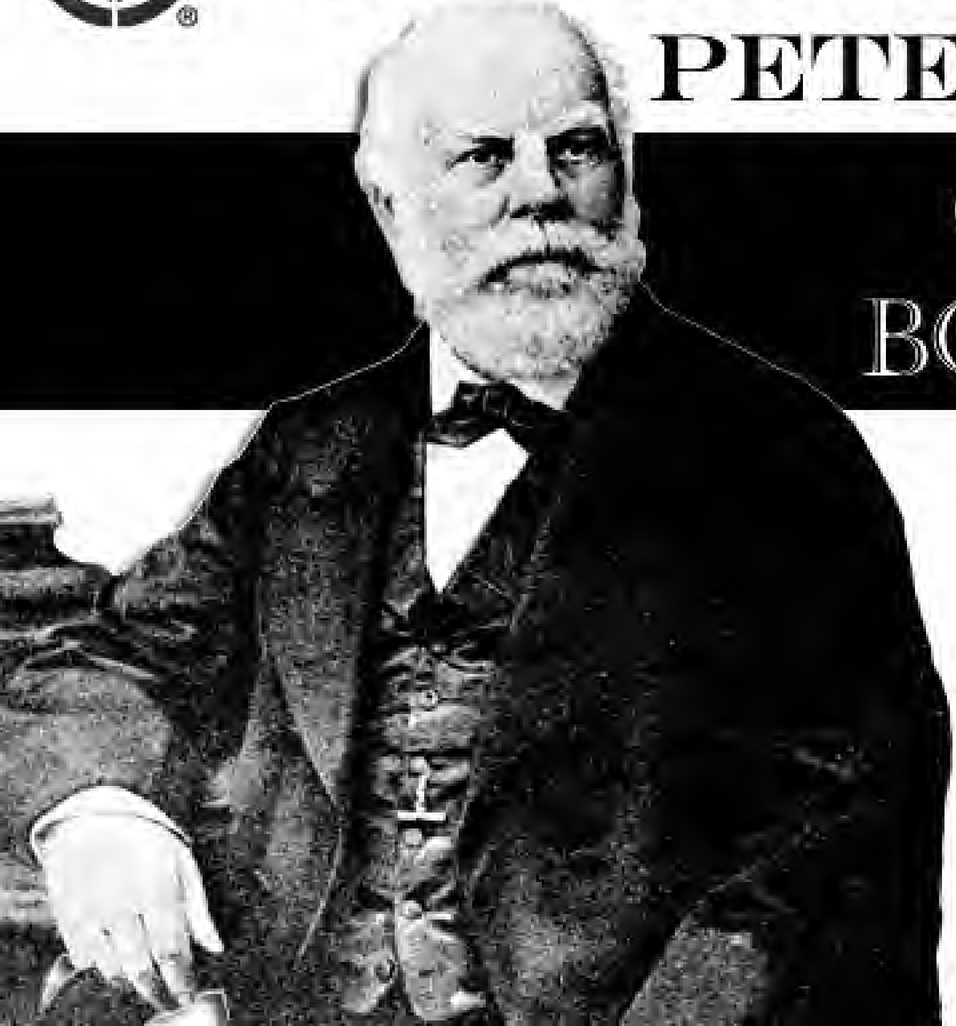


GEORGE ENGELMANN BOTANICAL NOTEBOOKS

Pagination Note:
Since many of the items lack a specific page number, the page number displayed online refers to the sequentially created number each item was given upon cataloging the materials.

E. alata

887-8

It may not be out of place to add the following precautions: — Never observe through a window pane; even the best plate glass will distort the sun's image and vitiate the results. Arrange to observe the contacts of the sun with the wire as near the middle of the field as possible. Never disturb the mirror clamp between the two observations, as upon the fixity of this adjustment depends the precision of the result. If the sun is partially obscured by cloud, the observation can be often made by removing the cap containing the dark glass. Accurate results cannot be expected when the sun is within, say, two hours of noon, as the sun changes its altitude very slowly near the meridian.

The most rapid motion in altitude occurs, of course, when the sun is near the prime vertical, or directly east or west; but in this case not only is the sun too near the horizon to be observed advantageously, but the interval between the two observations being large, *irregularities* in the rate of the time-piece used will affect the accuracy of the result. (The mere *amount* of the rate, if it is regular, has no effect on the deduced clock error.) In general, the times from two to four hours from noon, before or after, will be found to give the best results. It will generally be found convenient to take the morning and afternoon observations at different points — in different rooms, for instance. It is scarcely necessary to say that in carrying the instrument about between observations, it should be held in a slightly inclined position, so that the pendulum, resting against the side of the tube, cannot swing about and jar the mirror adjustment.

This instrument has been patented and a number manufactured to supply a limited demand, which will be sold at the price of $15 each. Orders or inquiries may be addressed to Box 2725, Boston, Mass.

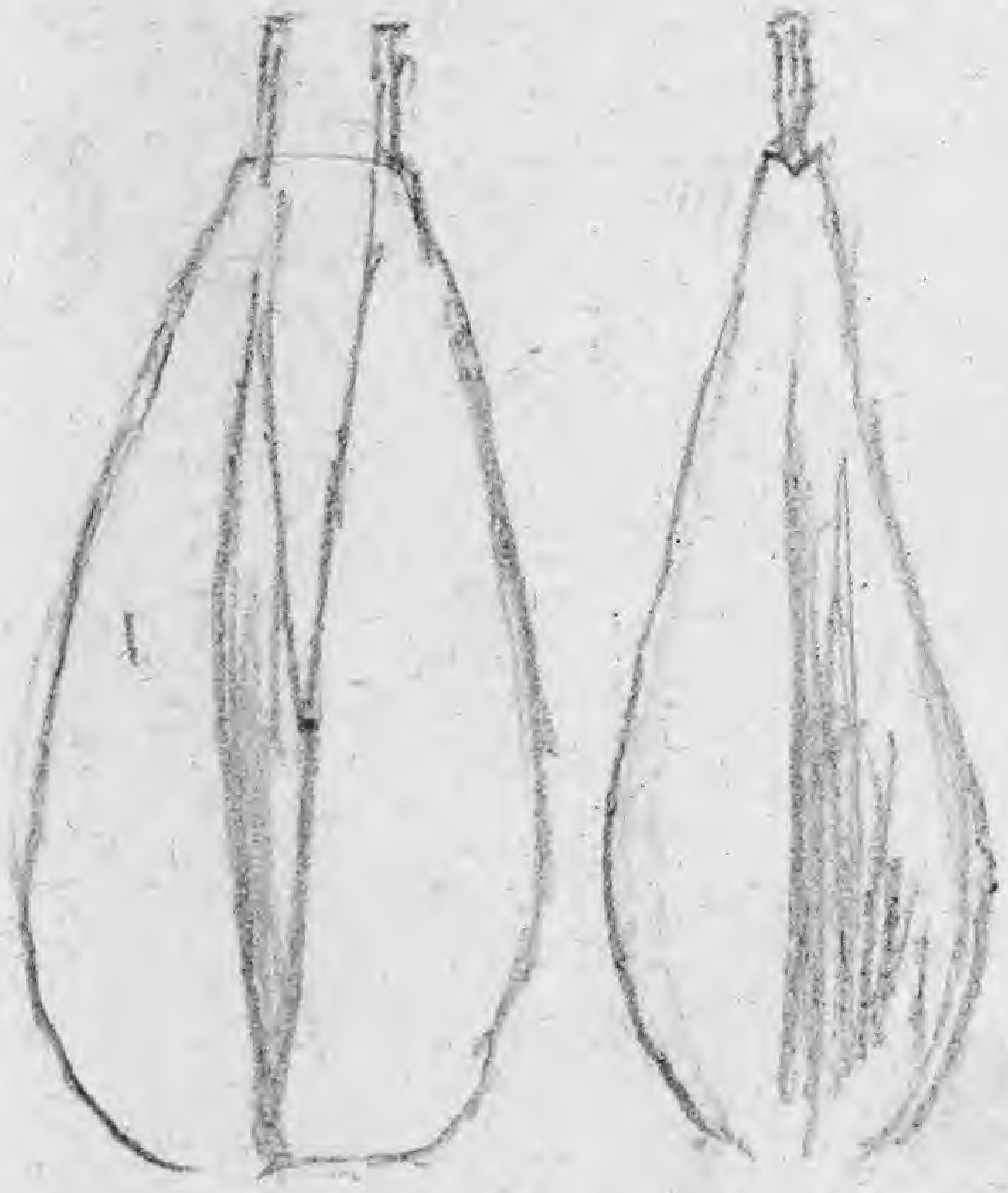
13461

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS

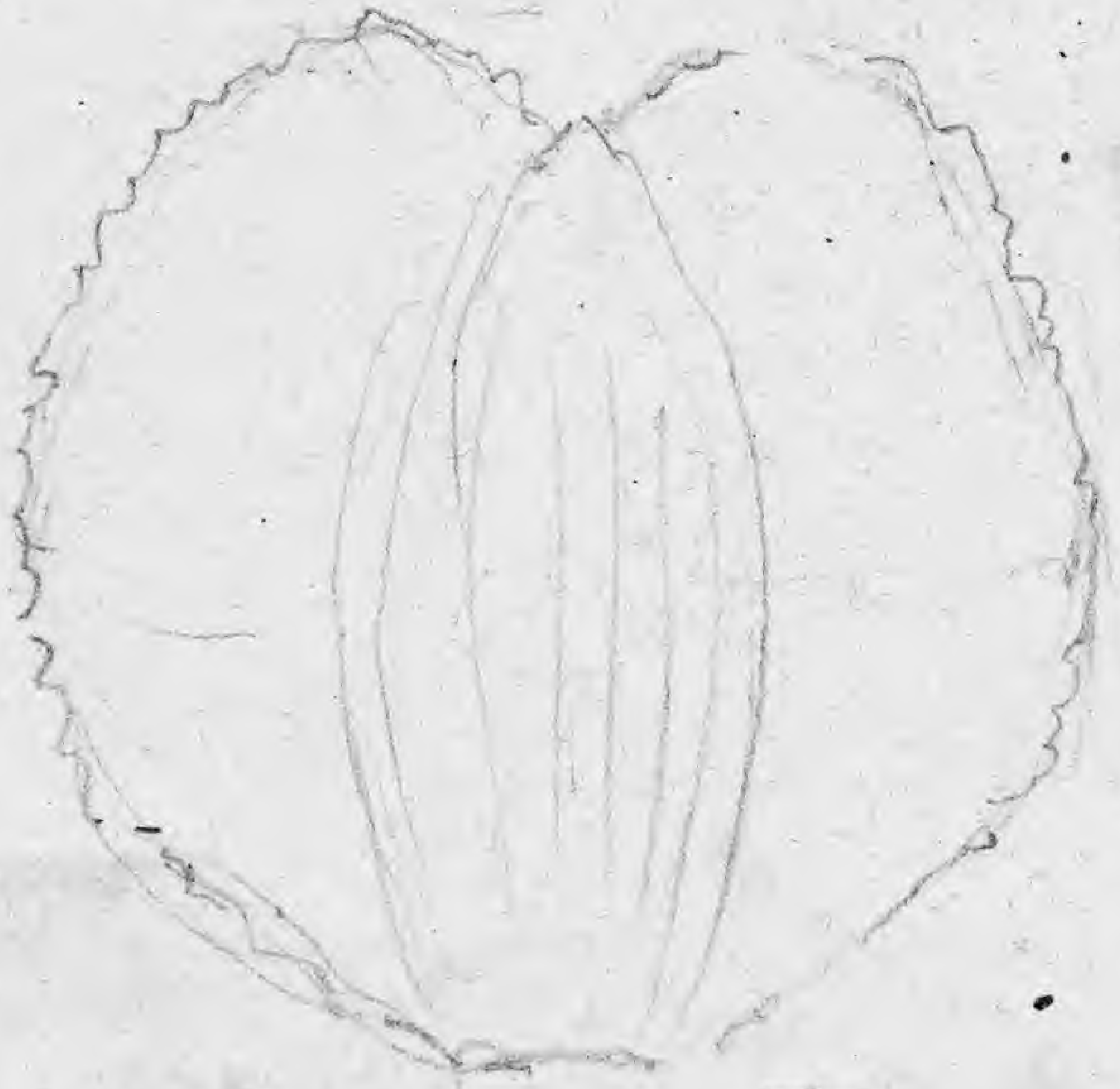
20.	0.0	—0.1	—0.1	—0.1	[illegible]	[illegible]	[illegible]
30.	+1.3	+1.4	+1.7	+2.1	+2.7	+3.6	+4.9
July 10.	2.6	2.9	3.5	4.3	5.5	7.2	9.7
20.	4.1	4.5	5.3	6.4	8.1	10.5	14.0
30.	5.6	6.2	7.1	8.5	10.5	13.5	17.8
Aug. 9.	7.2	7.8	8.8	10.4	12.7	16.0	20.8
19.	8.9	9.5	10.5	12.2	14.6	18.0	23.1
29.	10.5	11.1	12.1	13.7	16.1	19.6	24.7
Sept. 8.	12.0	12.6	13.5	15.1	17.4	20.7	25.6
18.	13.3	13.8	14.7	16.1	18.1	21.2	25.8
28.	14.3	14.8	15.5	16.8	18.6	21.3	25.4
Oct. 8.	15.0	15.3	16.0	17.0	18.5	20.8	24.4
18.	15.1	15.4	15.9	16.7	17.9	19.8	22.7
28.	14.7	14.9	15.3	15.8	16.8	18.2	20.5
Nov. 7.	13.5	13.6	13.9	14.3	14.9	15.9	17.6
17.	11.5	11.6	11.7	11.9	12.4	13.1	14.2
27.	8.8	8.8	8.9	9.0	9.2	9.6	10.4
Dec. 7.	5.4	5.4	5.5	5.5	5.6	5.8	6.2
17.	+1.5	+1.5	+1.5	+1.5	+1.5	+1.6	+1.7
27.	—2.5	—2.5	—2.5	—2.6	—2.6	—2.7	—2.8

Ephedra alata
Algiers, Cosson

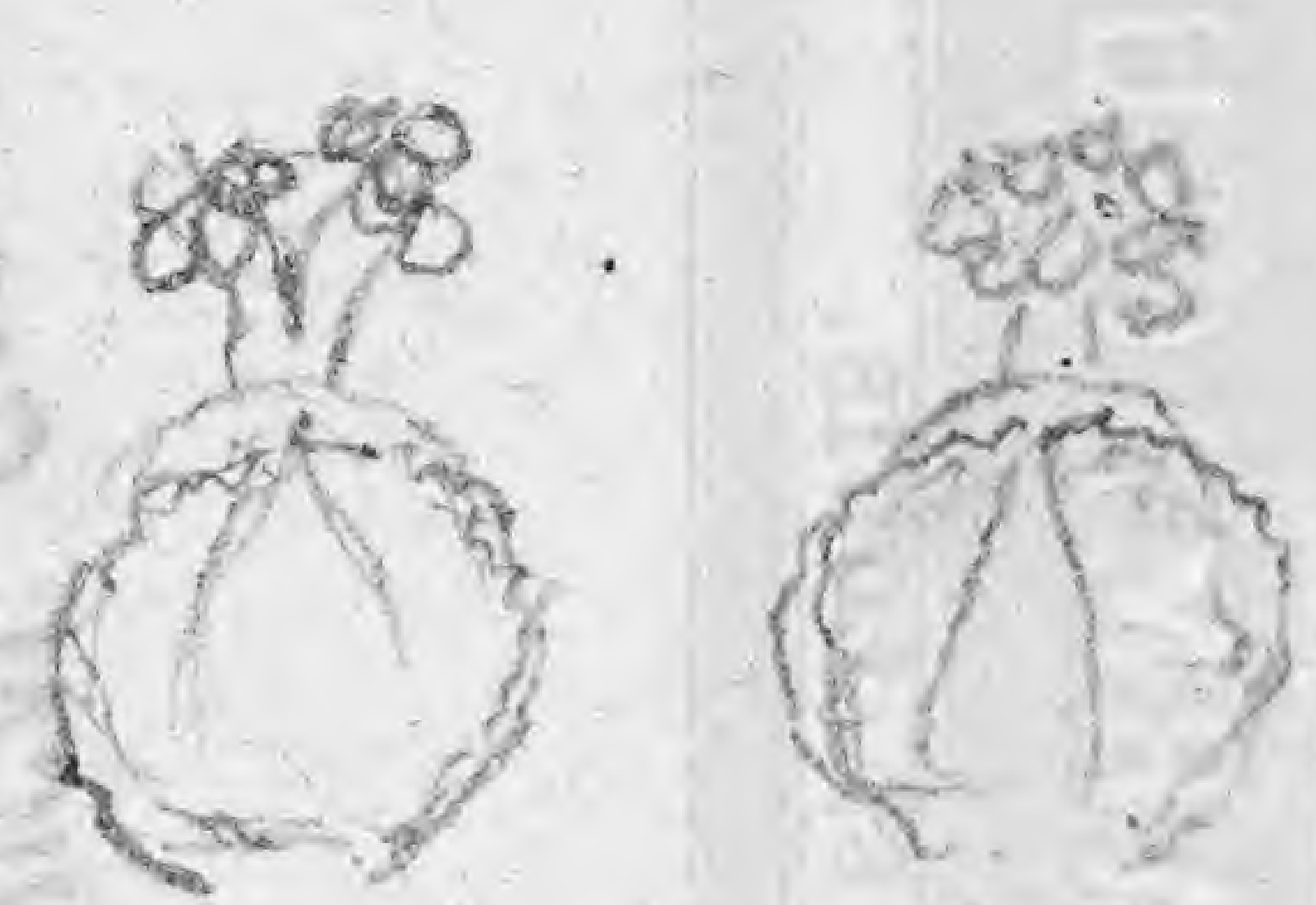
June 28 1882

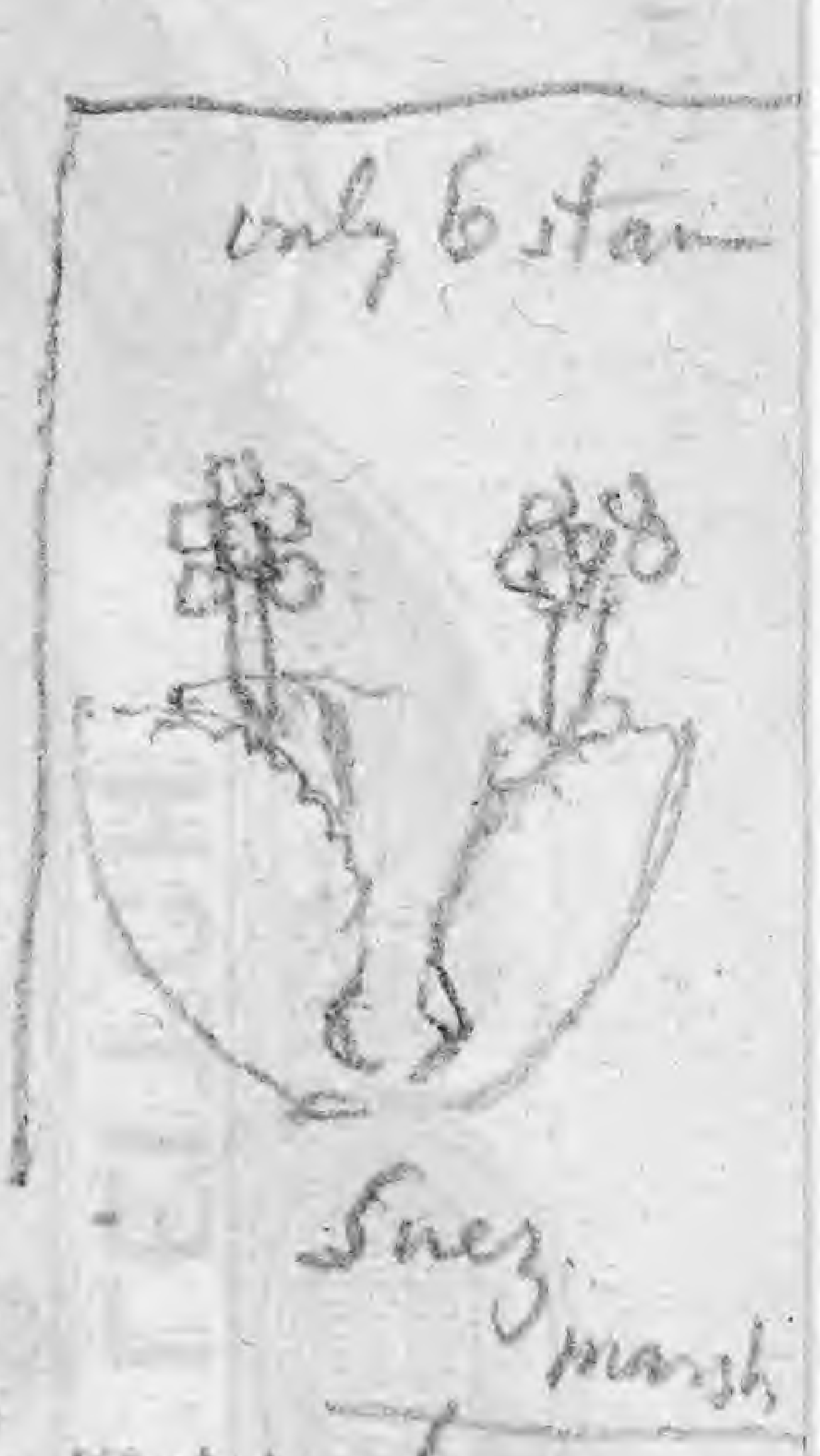


2 nuts
triangular
not longer than bracts



inner bracts
sessile, scarcely
connate
about 5-7 pairs of
circular bracts
emarginate above
denticulate





free denticulate
scales
perigon scarcely exsert
or not
anthers about 8, often
in 2 bundles
only species known to me
in which the male bracts
are not connate

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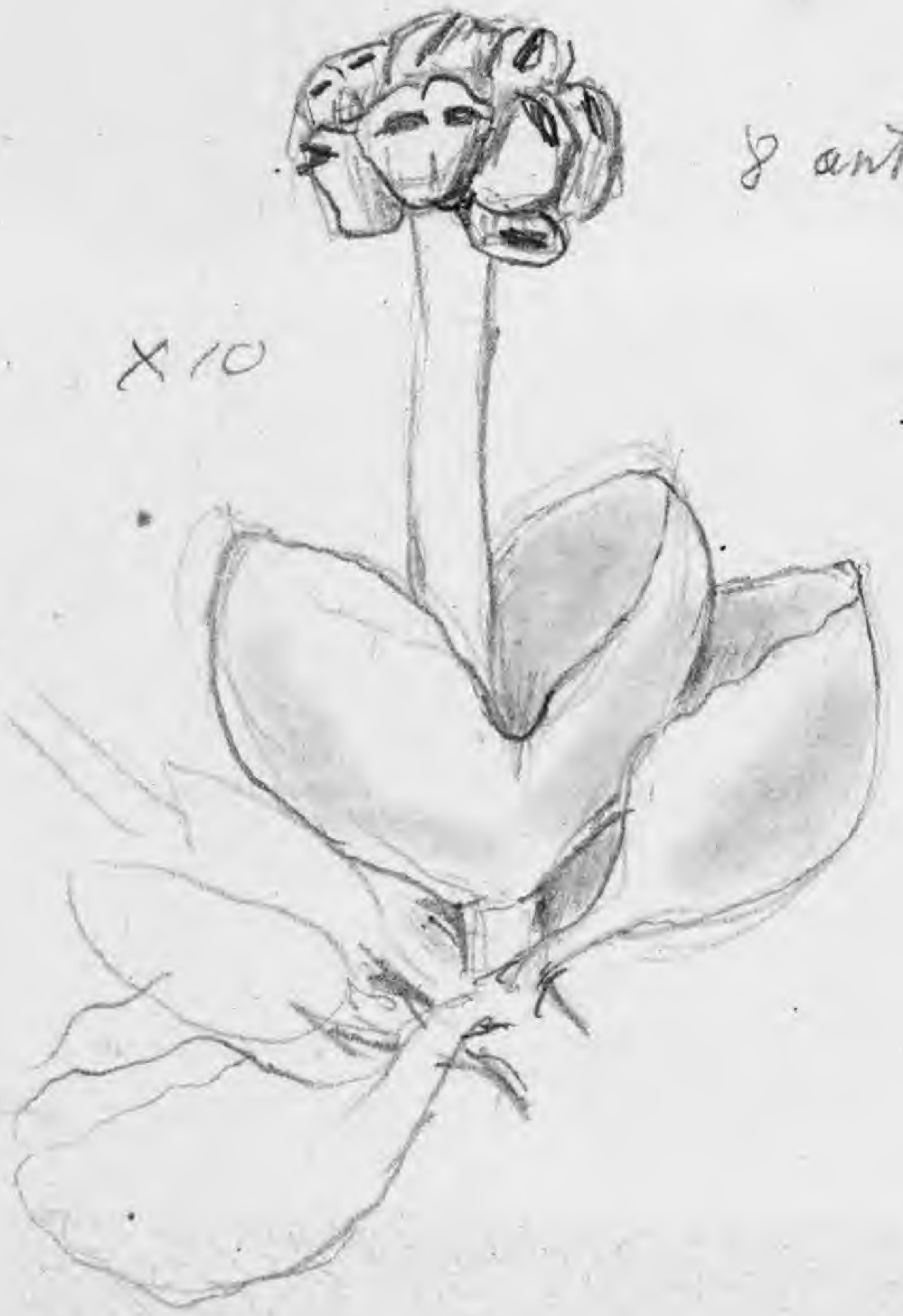
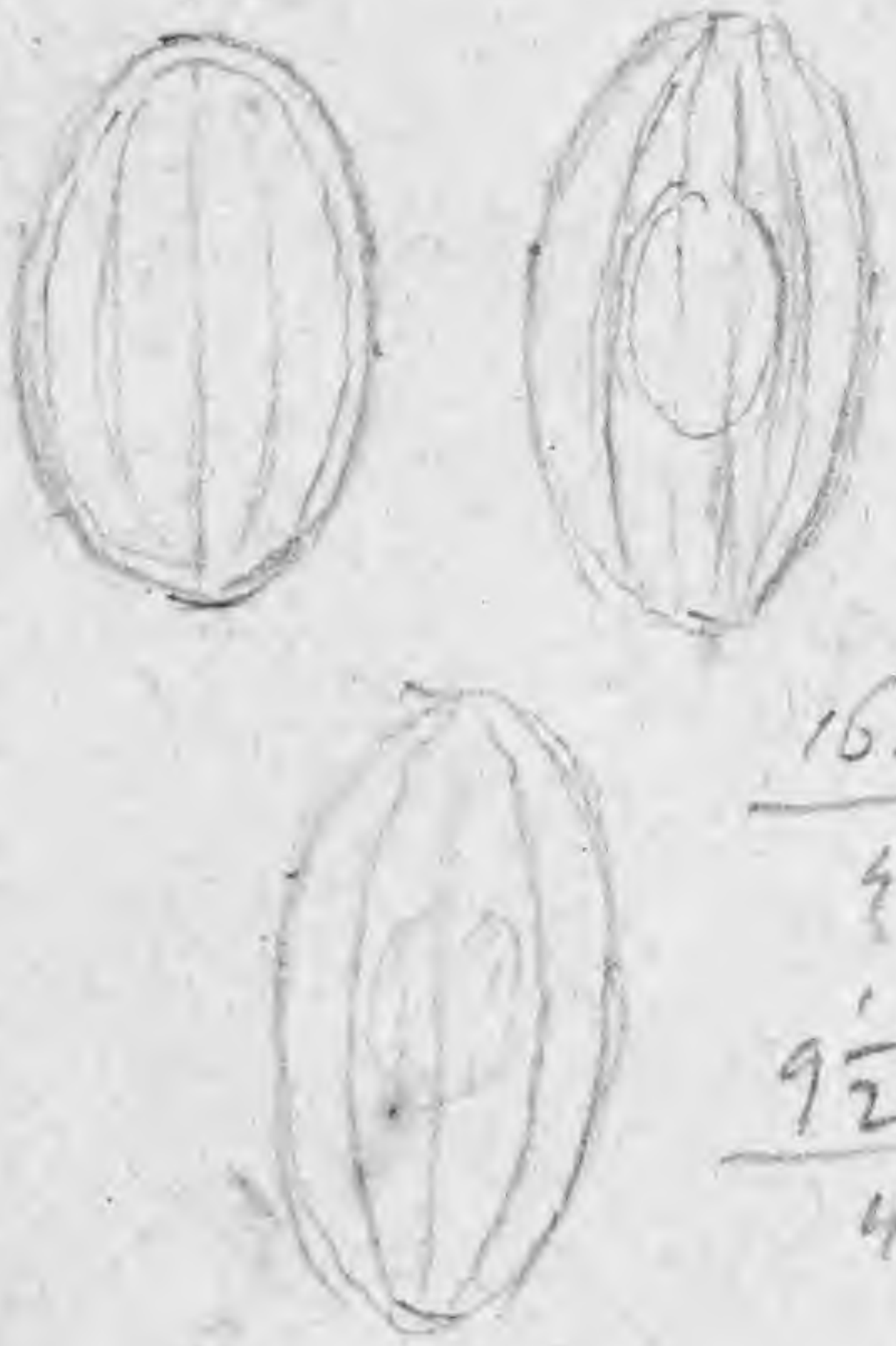
Ephedra alata 30 Jan 1864

Algiers

sessile
3 – 8 anthers in each flower.
fem. ament with about 7 pair
of membranaceous 2 keeled
winged scales, fleshy in the middle
& 2 unequal (one abortive?), or
probably typically 3 $\frac{2}{1}$) seeds
in centre

not rarely 8 anthers





$\frac{16–18^{mm}}{4'5} = 0.039–0.044^{mm}$

$\frac{9\frac{1}{2}–10^{m}}{4'5} \overset{0}{=} 0.023–0.024^{mm}$

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13463

ALL THE NEW REMEDIES CONSTANTLY ON HAND

ALEX. LEITCH,
APOTHECARY & CHEMIST,
Cor. 4th and Olive Sts., St. Louis.

CHEMIST.
A.L.

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E. altissima

Vol. III. **27.** No. 3.

Science Observer.

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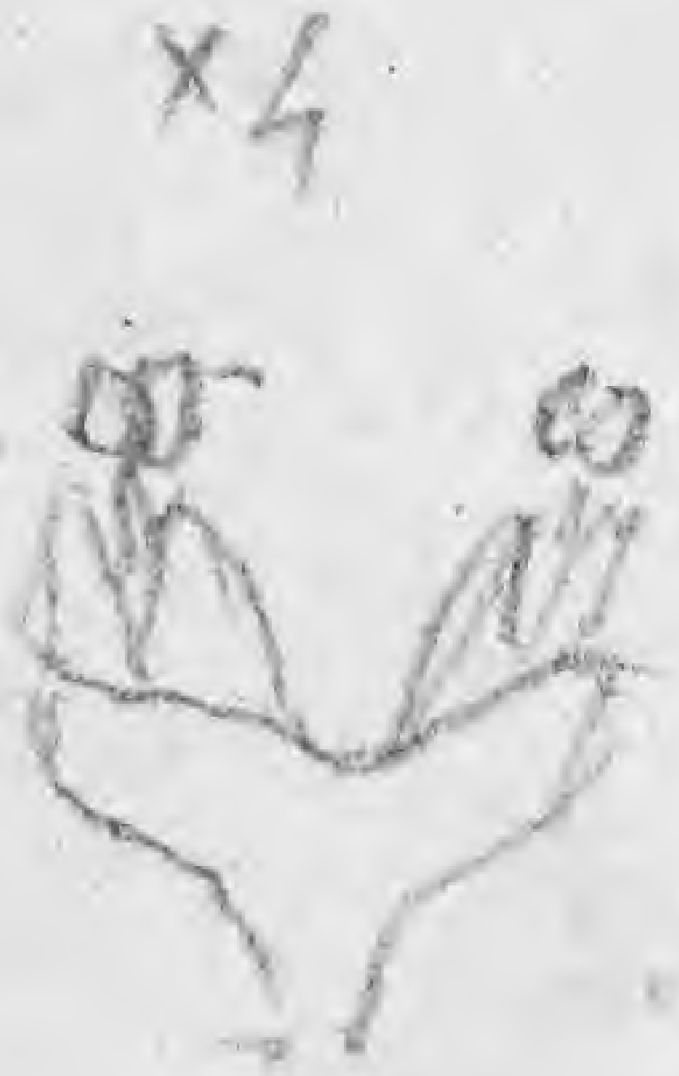
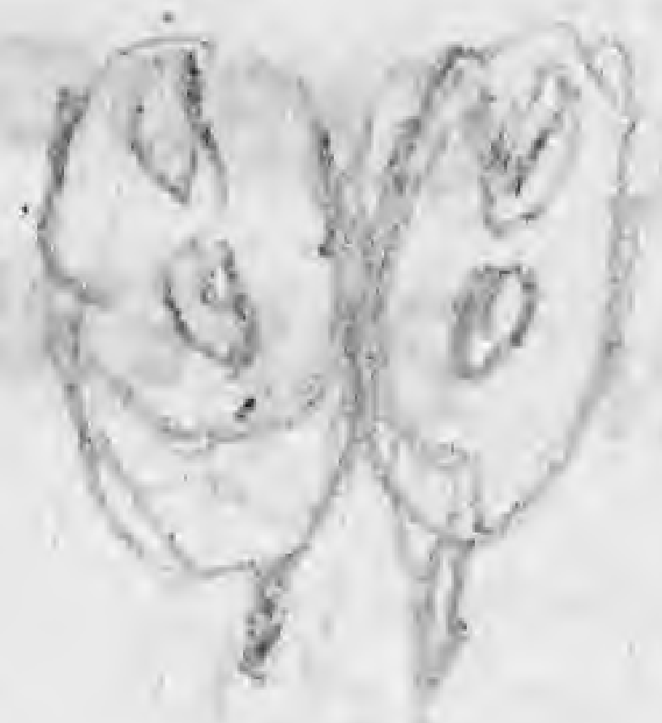
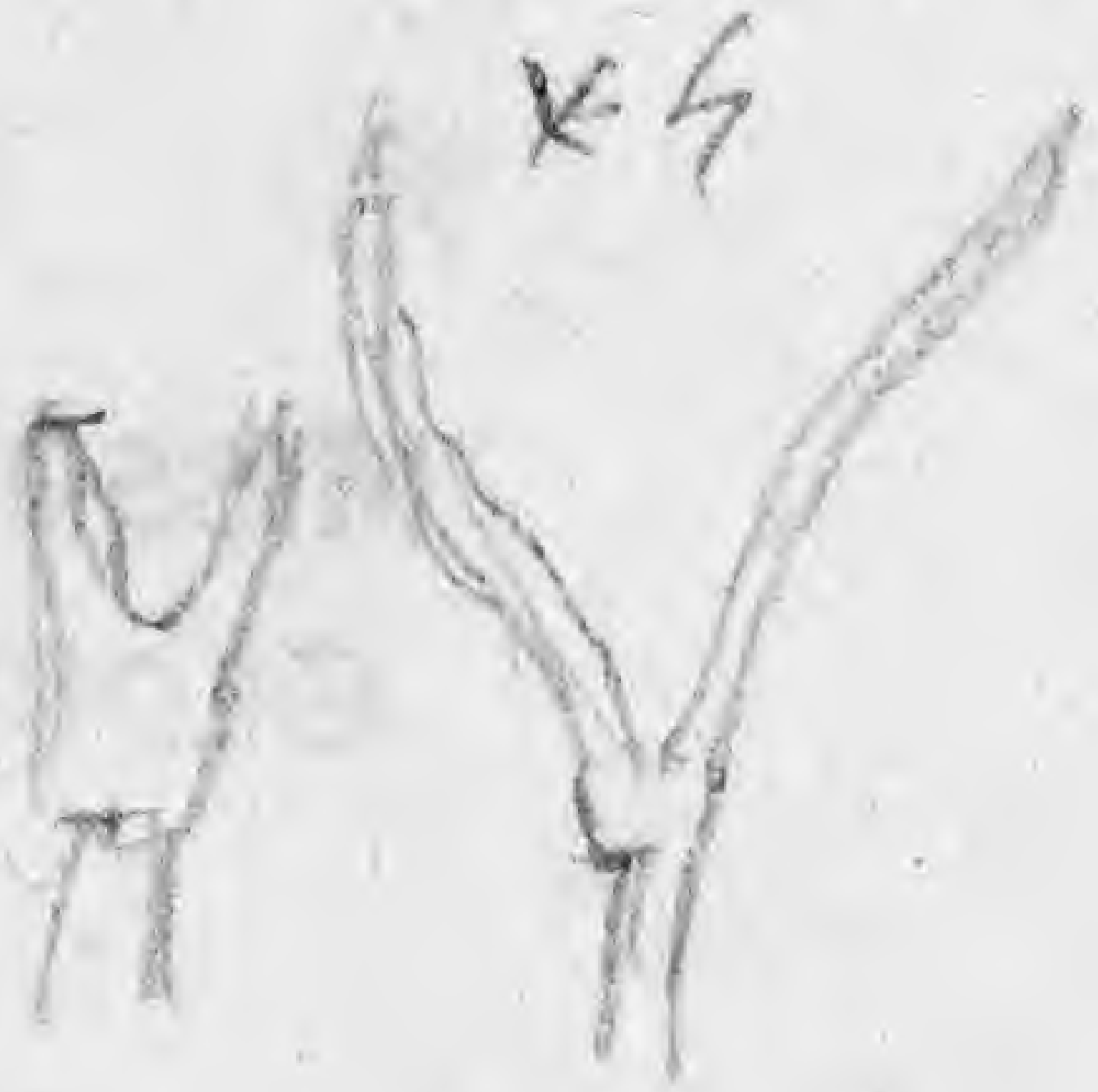
Ephedra altissima! June 28 1882
Oran, Ho. Webb







2 connate
anthers

Branching connate
exsert perigon

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and others. Where greater precision is required, a still further correction is to be applied to the observed time, on account of the difference of latitude from 42° 20′. This can easily be done by using the following tables, which give the correction necessary to the observed time, for each *degree* difference in latitude. The proper correction can be found by multiplying the difference between the latitude of place of observation, expressed in degrees and decimals, by the quantity in the table corresponding to the date and the interval between the observations. The resulting correction is to be *added algebraically* when the place is *south* of Boston, and *subtracted algebraically* when it is *north*.

For Observations Morning and Afternoon of same Day.				For Observations Afternoon of one day and Morning of next.			
4h.	8h.	12h.		12h.	16h.	18h.	20h.
s.	s.	s.		s.	s.	s.	s.
+ 0.1	+ 0.1	+ 0.2	January 1	— 0.2	— 0.3	— 0.4	— 0.6
0.4	0.4	0.5	February 1	0.5	0.8	1.2	1.8
0.5	0.6	0.7	March 1	0.7	1.1	1.6	2.4
0.5	0.6	0.7	April 1	0.7	1.1	1.6	2.5
0.4	0.5	0.6	May 1	0.6	0.9	1.2	1.9
+ 0.2	+ 0.2	+ 0.2	June 1	— 0.2	— 0.4	— 0.5	— 0.8
— 0.1	— 0.1	— 0.1	July 1	+ 0.1	+ 0.2	+ 0 3	+ 0.4
0.3	0.4	0.5	August 1	0.5	0.7	1.0	1.6
0.5	0.6	0.7	September 1	0.7	1.1	1.5	2.3
0.5	0.6	0.8	October 1	0.8	1.1	1.6	2.5
0.4	0.5	0.6	November 1	0.6	1.0	1.3	1.6
— 0.2	— 0.2	— 0.3	December 1	+ 0.3	+ 0.4	+ 0.6	+ 0.9

E. procera

859

13466

	20.	10.0	10.5	11.3	12.8	14.0	15.8	18.4	22.5
	30.	12.7	13.5	14.7	17.0	18.6	21.2	24.9	30.3
Aug.	9.	14.8	16.0	17.7	20.8	23.1	26.5	31.3	39.0
	19.	16.5	18.0	20.3	24.3	27.3	31.6	37.7	47.3
	29.	17.6	19.6	22.6	27.5	31.1	36.3	43.8	55.3
Sept.	8.	18.3	20.7	24.3	30.2	34.6	40.7	49.4	62.8
	18.	18.4	21.2	25.4	32.2	37.1	44.1	53.8	68.8
	28.	18.2	21.3	26.0	33.6	39.1	46.7	57.4	73.8
Oct.	8.	17.4	20.8	25.9	33.9	39.8	47.9	59.2	76.5
	18.	16.2	19.8	25.0	33.4	39.5	47.7	59.3	77.0
	28.	14.6	18.2	23.5	31.7	37.7	45.8	57.1	74.4
Nov.	7.	12.6	15.9	20.8	28.5	34.1	41.6	52.1	68.1
	17.	10.1	13.1	17.3	24.0	28.8	35.3	44.3	58.0
	27.	7.4	9.6	12.9	18.0	21.7	26.6	33.6	44.0
Dec.	7.	4.4	5.8	7.8	9.2	13.3	16.3	20.6	27.1
	17.	—1.2	—1.6	—2.2	—3.0	—3.7	—4.5	—5.7	— 7.5
	27.	+2.0	+2.7	+3.7	+5.1	+6.2	+7.6	+9.6	+12.7

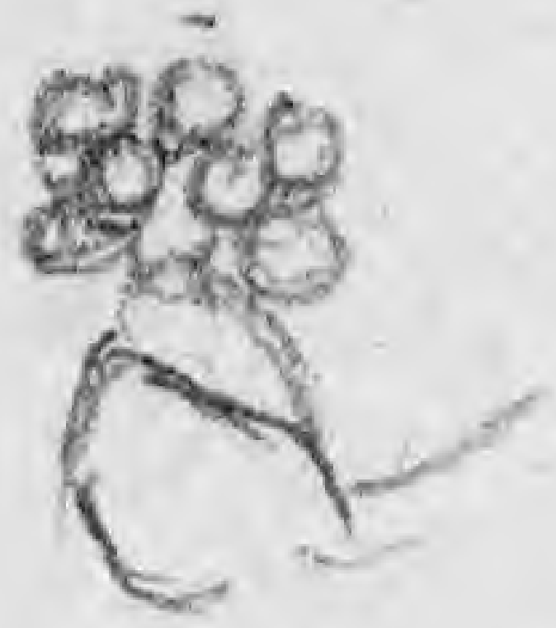
Ephedra procera

Jun 28 1882

Persia

Kotschy 417

×4



perigon scarcely exsert,
anthers 7 or slightly exsert
stipit.

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April 1879

Ephedra

Ephedra antisyphilitica, Berland (it seems that B. gave the name in his labels, (but not in my authentic autograph label!) but the first publication was by C. A Meyer) a much – usually verticillately – and intricately branched low shrub with gray shreddy bark of stem and green and somewhat rough branchlets; leaves in twos, mostly very short, & subulate, but in vigorous shoots or seedling plants 1/3 – 1/2 inch long, linear; Male aments [I discard the word "sterile" for "male" absolutely, for if any thing is the representation of fertility in the vegetable world it is the Pollen, the exciting agent; we might just as well call the male animal "sterile"] sessile, often clustered; stipe of the anthers short stout exsert, the anthers mostly 8, the lower ones sessile, the upper ones often slightly stipitate; female inflorescence subsessile or slightly peduncled, with 3–4 pairs of ovate acutish scales connate below, fleshy slightly margined, and often a few pairs of smaller, distant ones below, the inner ones gradually larger; nuts ~~mostly~~ in 2s ~~[illegible]~~ ovate, acute, moderately exsert.

Mexico as far south as Buenavista, and north ward (Gregg) Texas Berlandier, Lindheimer, Hall [By the way Berlandiers locality is on the Rio Frio, which is in Texas on the way from "Laredo to Bexar" not in Coahuila] Utah (Parry 251, male only) Arizona Palmer, seed only, and male sp. 248, from Camp Grant) Nevada (H Engelmann Watson) California (Cooper Fort Mohave, ? Mono lake Bolander, ? Santa Barbara Brewer 241)

E. pedunculata n. sp., a slender, loosely branched shrub, with long straggling, often pendulous, branches; leaves as in the last; male aments sessile or peduncled, common stipe of anthers slender, long exsert, anthers 3–6 or more rarely 8 ~~all~~ stipitate; female aments mostly (oft long) peduncled, with about 3 pairs of broadly ovate ~~acutish~~ scales (and several ~~[illegible]~~ pairs of smaller ones below them) connate below, rather fleshy, the inner ones gradually larger; nuts mostly in twos, (unripe) not much exceeding the inner scales.

Texas on the Rio Frio Parry Oct 1851 in flower and young fruit (it therefore flowers several times in the year, March to May and often again in autumn). San Luis Potosi

This is what I consider the original E. antisyphilitica

13468

2. Ephedra

No 855

Mexico, Parry 1878. Rio Frio is the same locality as Berlandier's type, from which the slender habit and the male flowers distinguish this form.

E. variabilis n. sp. leaves in 2s or 3s often on the same specimen, short, with broad membranaceous margins; male aments sessile; common ~~filament~~ ~~stalk~~ exsert, bearing ~~about~~ 8 ~~sessile or nearly sessile~~ anthers, ~~; female aments~~ the lower ones sessile, the upper ones long stipitate; female aments sessile, 4 pairs of membranaceous scales, orbicular, contracted at base and scarcely connate, together with the lanceolate acute ~~single~~ ovary (and nut?) rough,

Southern Utah, Parry 249 N Mexico, Wright 1882 & 1883. & Frontera, Parry 1852

Arizona, Fort Whipple Coues & Palmer ("a shrub 10-16 feet high")

[var. brachysperma seeds smooth, short and thick Palmer (near S. Diego ~~Arizona~~?) seeds only, Watson comm. sub nom. E. Californica. this I consider distinct, i.e. E. Californica.

I had considered this = E. Torreyana

[**E. scariosa** n. sp.] ~~foliis ternis, brevia~~ leaves in threes, short, with broad membranaceous margins; male aments sessile; the common stipe of anthers apparently not exsert (too young?); 5-8 stipitate anthers; female aments sessile consisting of numerous large hyaline-membranaceous ~~large~~ orbicular stipitate bracts denticulate on the margin; 1-3 (mostly 3 in my only specimen) lanceolate long pointed (immature) ~~pitch~~ nuts. Near Fronteras (n. 1883 Wright); El Paso (Bigelow); Sa Fe (80 Rothrock)

I had called this E. Torreyana (referred to by Torrey in Bot. Mex. Bound.)

Southern Utah, Parry No 250 1874

E. trifurca Torr. ~~shrub~~ with numerous erect often spinous-pointed branches; long subulate leaves in 3s; much longer than the male aments; female sessile, surrounded by ~~num~~ numerous circular hyaline, ~~stipitate~~ unguiculate bracts, with ~~smooth~~ entire edges; single seeds lanceolate, long pointed.

A. Wislizenus 1846 in July without fl or fr. Valverde, below Albuquerque in sandy soil; Frontera, Parry April 1852 beginning to flower; Wright N Mex 1884

Mojave agency, Arizona (n. 523½ Palmer, 1876)

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GEORGE ENGELMANN PAPERS
XX

Ephedra antisyphilitica April 1879

Typ. Berlandier Rio Frio — Lindh. Guadalupe — Austin Hall

Mexico Gregg Buena Vista — Mapimi — Castanuela

Utah Parry 251 ? male only

Arizona Palmer seeds male sp. 248 Palmer (Camp Grant

Nevada H. Engelm. Simpson Exped.

Californ. Cooper, Fort Mohave

? Brewer 347 Santa Barbara ?

? Monolake Bolander

E. [illegible] n. sp

South Utah Parry 1874 No 249

Arizona Coues & Palmer 1865. 570.

"10–16 feet high"

Frontera. April 52 Parry

Wright N Mex No 1882 & 1883

[illegible]

? Palmer Arizona ? 1867 seed only

Watson [illegible] Californica [illegible]

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Mrs Swalin

1107 N Olive St

Cord	10.15 10 1		1.40
Stuff	35 30		65
Bias	10		110
Butt	70		155
fond	30		470
Braid	50		
Lining	80		
Vogel	25		

13470

Strasburger Conif. & Gnet. 1872

p.76 The uppermost pairs of leaves in Ephedra [including the fruit] become fleshy, and mostly bright red.

p.77 The outer integument is thickened and at last ligneous

This outer integument is to me (Strasb.) a carpel, (Fruchtknotenwandung), the inner an "integument"

p.79. Van Tieghem finds that the germ (Samenknospe) or ovule arises from a single two nerved carpel, which bears its ovule on the base of the upper side. But it appears plain that two carpellary leaves enter into the composition of this carpel

p.80 The (fem.) flowers appear in the axils of the two uppermost bracts (in E. campylopoda)

p.87. In Eph. altissima is only one ♀ fl., we therefore find no terminal cone (vegetationskegel) between two flowers as in E. campylopoda, but the flower is really terminal — similar to Taxus, while E. campyl. is similar to Torreya.

p.88 The fruit is a nut and has several faint ridges corresponding to the number of vessel-bundles

The cell wall of the nucellus forms in the fruit a 3d very thin, brown, membrane

13471

April 20 1879

Ephedra

Ephedra pedunculata [var. of ant ?] n. sp. Rio Frio Texas to San Luis Potosi   Parry 1851 No 855   Parry 1879

foliis binis. Ament ♂ sessil. s. pedunculat.; stipite antherarum communi longe exserto, antheris gracili singulis 5–6 raro 8 ~~longioribus~~ stipitatis; ament ♀ plerumque longius pedunculato, pedunculo squamoso, squamis amenti propriis sub 6, 2-seriatis late ovatis orbicularis margine membranaceis ~~[illegible]~~ gradatim longioribus ~~excedentibus~~ – nuculis plerumque binis (immaturis) vix brevioribus

Texas, Rio Frio, Oct 1851 Parry. San Luis Potosi 1879 Parry

Ephedra antisyphilitica C.A. Meyer   foliis binis – Ament ♂ sessil. stipite antherarum communi breviter exserto antheris singulis subsessilibus sub 8; ament ♀ sessilibus s. breviter pedunculatis squamis amenti propriis ~~[illegible]~~ 6–8 late ovatis, acutis vel subacuminatis, margine tenuibus, [illegible] gradatim ~~majoribus~~ majoribus, nuculis plerumque binis exsertis ovatis acutis

Texas, Mexico, Utah, Nevada California

E. variabilis n. sp. foliis binis ternisve, ~~margine~~ membranaceis. amenta ♂ sessil. stipite anther. comm. exserto, antheris (~~singulis~~) 5–8 inferioribus sessilibus superioribus longius stipitatis. ament ♀ sessilibus, squamis orbicularis membranaceis basi contractis vix connatis gradatim majoribus. nuculis singulis pyramidato acutatis longius exsertis plus minus ve asperatis   S. Utah 249 Parry, Wright N Mex 1882.83

var. ~~[illegible]~~ brachysperma. Semen brevibus Arizona Coues & Palmer 10–16' high Frontera Parry latioribus ~~[illegible]~~ minus exsertis, Palmer. an solum ex Arizona?

Watson com. ex Californ.

E. scarbosa n. sp. South Utah Parry 1874 No 250.

foliis ternis brevia margine ~~membranaceis~~, ament ♂ sessil; stipite anth. com. incluso (immaturo?) antheris 5–8 stipitatis. Ament ♀ sessil. multibracteatis bract. hyalino-membr. orbiculatis ~~[illegible]~~ eroso-denticulatis breviter stipitatis. Sem 1–3, saepius 3 ~~pyramidatis~~ lanceolato-pyramid. (immaturis)

E. trifurca Torr. ~~erecta~~ stricta ramosissima ramis spinescentibus foliis ternis, longiora subulat., ament ♂ sessil. (immatur) foliis breviora – ament ♀ sessil. multibracteatis bract. hyalin membr. orbiculat margine integris longius stipitat; sem. singula lanceolat-pyramidat (immatur).

Wislizenus 1846 in July (without fl & fr) Sandy Soil at Valverde N Mex

Frontera Parry April 52 just begin to flower

Wright N Mex 1884

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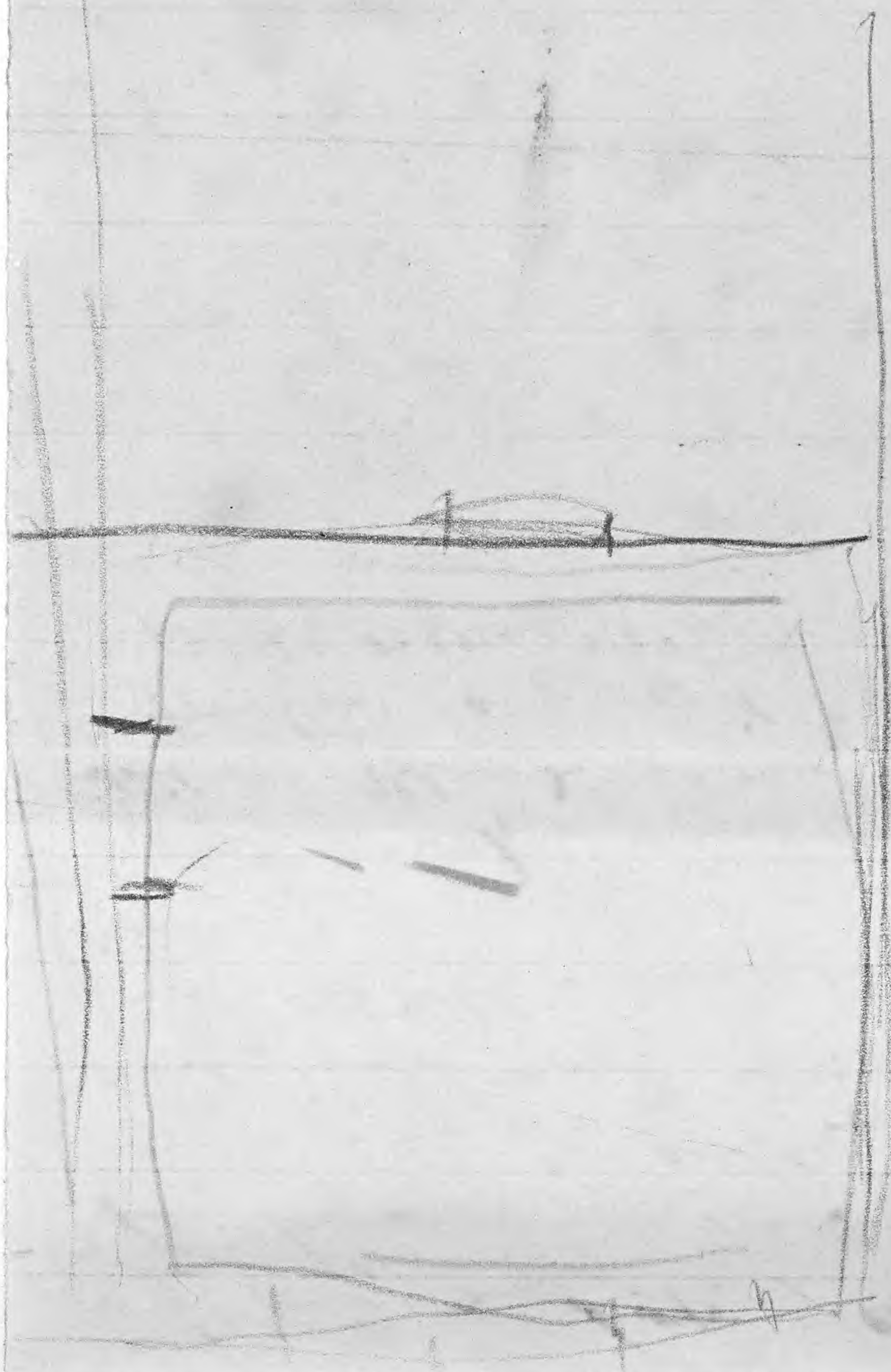

13472A
13472B

St. Louis, Mo., April 16 1879

G. Bentham Esq

Dear Sir

I sent you, at the request of Prof Gray, a memorandum about Phoradendron Juniperinum. At that time I could not send any specimens but do so now, as I received today a package of specimens of both sexes, gathered in Libocedrus and sent by Mr Lemmon, whose name is familiar to you, from Sierra Valley. The female seems to be in bloom, but the male is undeveloped yet (in the first week in April! Or does it come from a tree that had been cut down in winter?) At all events the male spikes

scabra smoothish — leaves short, broad
spreading

variabilis roughish

pedunculata roughish, subulate leaves in pairs

antisyphilitica –

Annie M. Reed

March 1st 1880

13473

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April 3d 1882

Ephedra Californica from San Diego March 31 1882 Dr Parry
sent fresh

Leaves always in 3s flowering verticils also often in 3, sometimes less or sometimes more aments, 1 or 2 secondary from the axil of the lowest bracts of the primary one. Aments sessile all the scales orbicular

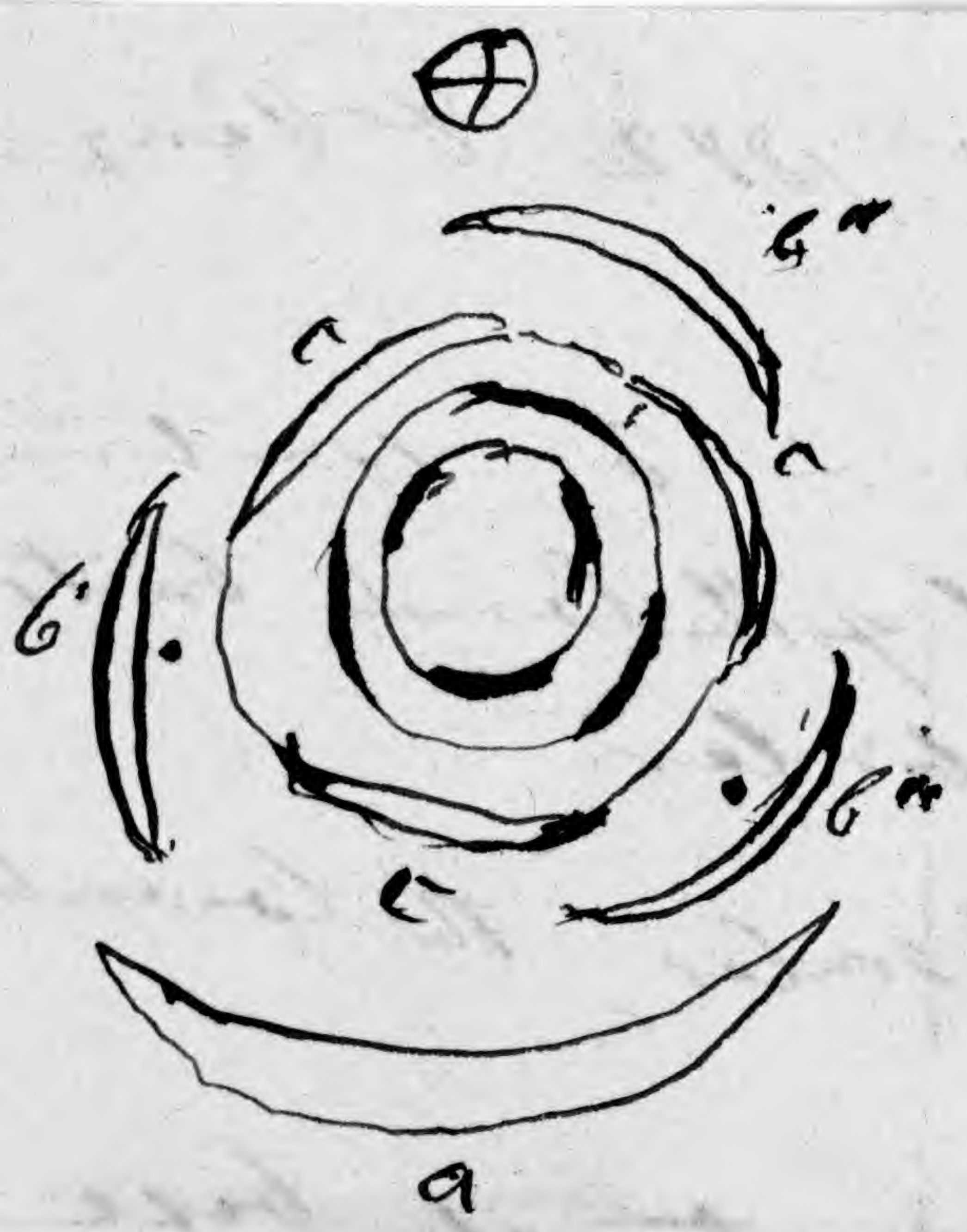
♂ Male aments with 10 or 12 ternate verticils of scales, the lowest half very small, orbicular, connate at base; sterile
the upper half or about 5 flower bearing; ~~connate at base~~;
Utric. only short enclosed, anthers scarcely exsert above scales;
4 to 6, the upper ones shortly stipitate, the lowest ones sessile.

♀ female ament one flowered; also with about 10 verticils of bracts; the lowest 3 free, the others connate into 3 lobed cups; the uppermost ones largest and contracted above base into a sort of broad stipe or unguis.
fruit obtuse, single, short exsert above the uppermost bracts

for position of bracts see other side

over

13474



a bract bearing the ament

bbb outermost free (brown) bracts of ament pushed a little side ways

ccc next connate verticil of (green) bracts a little more median

next and following verticils in regular position so that the odd bract in one is exactly ventral in the next verticil exactly dorsal

from the axils of b' and b'' secondary spikelets are apt to be developed

Over

0 1 2 3 4 5 6 7 8 9 10
cm
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MISSOURI BOTANICAL GARDEN